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# United States Department of Agriculture,

OFFICE OF THE SECRETARY—Circular No. 15.

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## ADULTERATION OF KENTUCKY BLUEGRASS AND ORCHARD GRASS SEED.

Seeds of Kentucky bluegrass and of orchard grass have been obtained and tested in accordance with the following paragraph contained in the act of Congress making appropriations for the Department of Agriculture:

The Secretary of Agriculture is hereby directed to obtain in the open market samples of seeds of grass, clover, or alfalfa, test the same, and if any such seeds are found to be adulterated or misbranded, or any seeds of Canada bluegrass (*Poa compressa*) are obtained under any other name than Canada bluegrass or *Poa compressa*, to publish the results of the tests, together with the names of the persons by whom the seeds were offered for sale.

In carrying out the provisions of this act 251 samples of seed of Kentucky bluegrass and 265 samples of orchard grass were obtained in the open market and examined. Of these, 41 samples of seed of Kentucky bluegrass were found to be adulterated with seed of Canada bluegrass, while 133 samples of orchard grass seed were found to be adulterated, the seeds most commonly used as adulterants being English rye-grass and meadow fescue, the value of neither being more than one-third to one-half that of orchard grass seed. That the adulteration of orchard grass is very general is evidenced by the fact that samples containing adulterants were obtained from 24 States.

While Canada bluegrass is imported into the United States in quantities varying from 600,000 to 700,000 pounds per annum, it is used only occasionally in this country, and it is evident that the bulk of the seed imported is sold as Kentucky bluegrass.

In accordance with the provisions of the act of Congress quoted, publication is here made of the names and addresses of the seedsmen who sold the lots found to be adulterated, together with the percentages of adulteration in each lot.

*Results of tests of samples of seed obtained in the open market as Kentucky bluegrass seed and found to be adulterated.*

Seed sold as Kentucky bluegrass by—		Quantity examined.	Seeds used as adulterants.	
Name.	Address.		Canada bluegrass.	Total adulterants.
			<i>Per cent.</i>	<i>Per cent.</i>
Frank H. Battles.....	28 Selye Terrace, Rochester, N. Y.	Mail sample .....	19.32	19.32
Brewster, Crittenden & Co. ....	44 N. St. Paul street, Rochester, N. Y.	.....do .....	23.77	23.77
Do. ....	do. ....	Seed bought in bulk ..	24.08	24.08
A. C. Brown .....	217 S. Fifth street, Springfield, Ill.	Mail sample .....	28.35	28.35
M. F. Crissman .....	Manchester, Ohio .....	.....do .....	30.65	30.65
Do. ....	do. ....	Seed bought in bulk ..	21.49	21.49
Curry-Arrington Co. ....	Rome, Ga. ....	Mail sample .....	21.54	21.54
Do. ....	do. ....	Seed bought in bulk ..	27.74	27.74
Zach Davis Co. ....	Delaware, Ohio .....	Mail sample .....	23.23	23.23
Do. ....	do. ....	.....do .....	25.48	25.48
Do. ....	do. ....	Seed bought in bulk ..	21.02	21.02
Denver Seed and Floral Co. ....	Denver, Colo. ....	Mail sample .....	29.03	<i>a</i> 46.86
Do. ....	do. ....	Seed bought in bulk ..	25.1	25.1
J. A. Everitt .....	Indianapolis, Ind. ....	Mail sample .....	50.03	50.03
Do. ....	do. ....	Seed bought in bulk ..	35.99	35.99
Godden Co., Amzi. ....	Birmingham, Ala. ....	Mail sample .....	32.5	32.5
Griswold Seed Co. ....	Lincoln, Nebr. ....	.....do .....	47.55	47.55
Do. ....	do. ....	Seed bought in bulk ..	42	42
Harmon & Harris Co. ....	Exchange and Federal streets, Portland, Me. ....	Mail sample .....	46.19	46.19
Do. ....	do. ....	Seed bought in bulk ..	46.19	46.19
Joseph Harris Co. ....	Coldwater, N. Y. ....	Mail sample .....	18.55	18.55
Do. ....	do. ....	Seed bought in bulk ..	25.11	25.11
Arthur G. Lee & Bro. ....	Fort Smith, Ark. ....	Mail sample .....	72.55	<i>b</i> 80.72
Do. ....	do. ....	Seed bought in bulk ..	76.85	76.85
Leonard Seed Co. ....	79 E. Kinzie street, Chicago, Ill.	Mail sample .....	89.91	89.91
Do. ....	do. ....	Seed bought in bulk ..	83.23	83.23
M. G. Madson Seed Co. ....	Manitowoc, Wis. ....	Mail sample .....	41.56	41.56
Plant Seed Co. ....	814 N. Fourth street, St. Louis, Mo.	.....do .....	55.13	55.13
Do. ....	do. ....	Seed bought in bulk ..	25.98	25.98
Martin C. Kibsam .....	Broad and Front streets, Trenton, N. J.	Mail sample .....	78.92	<i>c</i> 83.12
Ross Bros. ....	90 Front street, Worcester, Mass.	.....do .....	2.7	<i>d</i> 48.1
Do. ....	do. ....	Seed bought in bulk ..	19.32	19.32
John A. Salzer Seed Co. ....	La Crosse, Wis. ....	Mail sample .....	19.45	19.45
Do. ....	do. ....	Seed bought in bulk ..	22.74	22.74
Schisler-Corneli Seed Co. ....	813 N. Fourth street, St. Louis, Mo.	Mail sample .....	84	84
Do. ....	do. ....	Seed bought in bulk ..	8.67	8.67
A. Tilton & Son .....	83 Woodland avenue, Cleveland, Ohio.	Mail sample .....	23.8	23.8
Do. ....	do. ....	Seed bought in bulk ..	25.3	25.3
E. T. Wheeler .....	1131 Main street, Bridgeport, Conn	Mail sample .....	36.91	36.91
Do. ....	do. ....	Seed bought in bulk ..	30.89	30.89
Young & Halstead .....	2 Grand street, Troy, N. Y. ....	Mail sample .....	59.9	<i>e</i> 66.9

*a* 17.56 per cent redtop.

*b* 8.17 per cent timothy.

*c* 4.2 per cent timothy.

*d* 45.4 per cent redtop.

*e* 4.1 per cent timothy; 2.9 redtop.

*Results of tests of samples of seed obtained in the open market as orchard grass seed and found to be adulterated.*

Seed sold as orchard grass by—		Quantity examined.	Seeds used as adulterants.	
Name.	Address.		Meadow fescue and ryegrass.	Total adulterants.
			<i>Per cent.</i>	<i>Per cent.</i>
N. H. Adams & Son ...	Decorah, Iowa .....	Mail sample .....	23.93	23.93
Do. ....	do. ....	Seed bought in bulk ..	18.8	18.8
T. Lee Adams .....	417 Walnut street, Kansas City, Mo.	Mail sample .....	10.78	10.78
Do. ....	do. ....	Seed bought in bulk ..	13.2	13.2
Alexander Seed Co. ....	Augusta, Ga. ....	Mail sample .....	26.7	26.7
Do. ....	do. ....	Seed bought in bulk ..	29.68	29.68
H. C. Anthony .....	Portsmouth, N. H. ....	Mail sample .....	22.25	<i>a</i> 38.55
Do. ....	do. ....	Seed bought in bulk ..	24.3	<i>b</i> 27.4

*a* 6.7 per cent other fescue grasses; 6.8 per cent bromus; 2.8 per cent molinia.

*b* 3.1 per cent molinia.

*Results of tests of samples of seed obtained in the open market as orchard grass seed and found to be adulterated—Continued.*

Seed sold as orchard grass by—		Quantity examined.	Seeds used as adulterants.	
Name.	Address.		Meadow fescue and rye-grass.	Total adulterants.
			<i>Per cent.</i>	<i>Per cent.</i>
Batchelor's Seed Store.	26 Liberty street, Utica, N. Y.	Mail sample.	51.15	51.15
Do.	do.	Seed bought in bulk.	37.4	a 43.50
Frank H. Battles.	Rochester, N. Y.	Mail sample.		b 19.7
Do.	do.	Seed bought in bulk.	26.58	26.58
A. A. Berry Seed Co.	Clarinda, Iowa.	Mail sample.	9.13	c 33.37
Do.	do.	Seed bought in bulk.	7.7	d 29.35
Binghamton Seed Co.	Henry and Water streets, Binghamton, N. Y.	Mail sample.	21.68	21.68
Do.	do.	Seed bought in bulk.	19.4	19.4
F. W. Bolgiano & Co.	935 B street, Washington, D. C.	Mail sample.	25.4	25.4
Do.	do.	Seed bought in bulk.	25.8	25.8
C. S. Brent.	Lexington, Ky.	Mail sample.	26.62	26.62
Do.	do.	do.	29.79	29.79
Do.	do.	Seed bought in bulk.	2.45	2.45
Brewster, Crittenden & Co.	44 North St. Paul street, Rochester, N. Y.	Mail sample.	32.65	32.65
Do.	do.	Seed bought in bulk.	39.71	39.71
A. C. Brown.	217 South Fifth street, Springfield, Ill.	Mail sample.	18.4	18.4
Do.	do.	Seed bought in bulk.	18.54	18.54
John J. Burlington & Co.	104 South Charles street, Baltimore, Md.	Mail sample.	9.19	9.19
Do.	do.	Seed bought in bulk.		e 2.79
D. V. Burrell.	Rocky Ford, Colo.	Mail sample.	25.26	f 34.85
Do.	do.	Seed bought in bulk.	55.85	g 64
Charleston Nursery and Seed Co.	Charleston, W. Va.	Mail sample.	40.45	40.45
Do.	do.	Seed bought in bulk.	43.75	43.75
Chesmore-Eastlake Mercantile Co.	838 South Fourth street, St. Joseph, Mo.	Mail sample.	6.75	h 20.09
Do.	do.	Seed bought in bulk.	12.75	i 22.60
O. W. Clark & Sons.	59 Seneca street, Buffalo, N. Y.	Mail sample.	26.5	26.5
Do.	do.	Seed bought in bulk.	26.15	26.15
E. W. Conklin & Sons.	Binghamton, N. Y.	Mail sample.	26.4	26.4
Do.	do.	Seed bought in bulk.	23.4	23.4
M. F. Crissman.	Manchester, Ohio.	Mail sample.	44.5	44.5
Do.	do.	Seed bought in bulk.	49.95	49.95
Crosman Bros.	Rochester, N. Y.	Mail sample.	19.86	19.86
Do.	do.	Seed bought in bulk.	16.21	16.21
Curry-Arrington Co.	Rome, Ga.	Mail sample.	36.3	36.3
Do.	do.	Seed bought in bulk.	37.45	37.45
Zach Davis Co.	Delaware, Ohio.	Mail sample.	19.74	j 21.29
Do.	do.	do.	19.62	19.62
Do.	do.	Seed bought in bulk.	19.55	19.55
Edward P. Dibble.	Honeoye Falls, N. Y.	Mail sample.	15.36	15.36
Farber Seed Co.	St. Joseph, Mo.	do.	35.8	35.8
Do.	do.	Seed bought in bulk.	10.7	10.7
Wm. S. Gilbreath Seed Co.	Indianapolis, Ind.	Mail sample.	11.4	11.4
Do.	do.	do.	13.86	13.86
Do.	do.	Seed bought in bulk.	6.25	6.25
Godden Co., Amzl.	Birmingham, Ala.	Mail sample.	25.3	25.3
Do.	do.	Seed bought in bulk.	24.2	24.2
James J. H. Gregory & Son.	Marblehead, Mass.	Mail sample.	21.11	21.11
Do.	do.	Seed bought in bulk.	20.85	20.85
Harmon & Harris Co.	Exchange and Federal streets, Portland, Me.	Mail sample.	21.25	21.25
Do.	do.	Seed bought in bulk.	20.25	20.25
Holmes Seed Co.	Harrisburg, Pa.	Mail sample.	42.73	42.73
Do.	do.	Seed bought in bulk.	46.15	46.15
Carl S. Hopkins.	Brattleboro, Vt.	Mail sample.	21.2	21.2
Do.	do.	Seed bought in bulk.	18.36	18.36
John Hubbard & Co.	First and Vine streets, Evansville, Ind.	Mail sample.	24.35	24.35
Do.	do.	Seed bought in bulk.	26.05	26.05
John D. Inlay.	54 Fifth street, Zanesville, Ohio.	Mail sample.	20.28	k 22.73
Do.	do.	Seed bought in bulk.	19.65	19.65
Iowa Seed Co.	613 Locust street, Des Moines, Iowa.	Mail sample.	18.89	18.89

a 6.1 per cent velvet grass.

b 19.7 per cent other fescue grasses.

c 24.24 per cent other fescue grasses.

d 21.65 per cent other fescue grasses.

e 2.79 per cent timothy.

f 9.59 per cent bromus.

g 8.15 per cent bromus.

h 9.99 per cent other fescue grasses; 3.35 per cent bromus.

i 6.1 per cent bromus; 3.75 per cent other fescue grasses.

j 1.55 per cent other fescue grasses.

k 2.45 per cent Kentucky bluegrass.



*Results of tests of samples of seed obtained in the open market as orchard grass seed and found to be adulterated—Continued.*

Seed sold as orchard grass by—		Quantity examined.	Seeds used as adulterants.	
Name.	Address.		Meadow fescue and ryegrass.	Total adulterants.
			<i>Per cent.</i>	<i>Per cent.</i>
S. M. Isbell & Co.....	Jackson, Mich.....	Mail sample.....	22.85	22.85
Do.....	do.....	Seed bought in bulk..	28.94	28.94
Milton T. Jones.....	14 Liberty street, Utica, N. Y.....	Mail sample.....	39.55	39.55
Do.....	do.....	Seed bought in bulk..	41.43	41.43
Kendall & Whitney Co.	Federal and Temple streets, Portland, Me.	Mail sample.....	26.2	26.2
Do.....	do.....	Seed bought in bulk..	1.29	1.29
Lacy Seed & Fuel Co..	Noblesville, Ind.....	Mail sample.....	50.6	50.6
Do.....	do.....	Seed bought in bulk..	50	50
Leonard Seed Co.....	79 E. Kinzie street, Chicago, Ill.....	Mail sample.....	27.21	27.21
Do.....	do.....	Seed bought in bulk..	24.5	24.5
Livingston Seed Co.....	Columbus, Ohio.....	Mail sample.....	19.76	19.76
Do.....	do.....	Seed bought in bulk..	25	25
J. M. McCullough's Sons	316 Walnut street, Cincinnati, Ohio.	Mail sample.....	21.75	21.75
Do.....	do.....	Seed bought in bulk..	3.1	3.1
I. S. Matthews' Sons...	Binghamton, N. Y.....	Mail sample.....	44.48	44.48
Do.....	do.....	Seed bought in bulk..	48.7	48.7
L. L. May & Co.....	381 Minnesota street, St. Paul, Minn.	Mail sample.....	73.65	<i>a</i> 89.7
Do.....	do.....	Seed bought in bulk..	9.9	9.9
Thos. Meherin.....	552 Battery street, San Francisco, Cal.	Mail sample.....	35.05	35.05
Do.....	do.....	Seed bought in bulk..	1.1	1.1
Henry F. Michell Co..	1018 Market street, Philadelphia, Pa.	Mail sample.....	37.35	<i>b</i> 65
Do.....	do.....	Seed bought in bulk..	34.6	<i>c</i> 50.65
P. B. Mingle & Co.....	103 Market street, Philadelphia, Pa.	Mail sample.....	26	26
Do.....	do.....	Seed bought in bulk..	28.45	28.45
Missouri Seed Co.....	1426 St. Louis avenue, Kansas City, Mo.	Mail sample.....	13.4	13.4
Walter Mott Seed and Bulb Co.	Jamestown, N. Y.....	do.....	44.4	44.4
Do.....	do.....	Seed bought in bulk..	42.2	42.2
Murray's Seed Store...	420 S. Adams street, Peoria, Ill.....	Mail sample.....	18.25	18.25
Do.....	do.....	Seed bought in bulk..	19.82	19.82
National Seed Co.....	101 W. Main street, Louisville, Ky.	Mail sample.....	26.68	26.68
Do.....	do.....	Seed bought in bulk..	3.55	3.55
Oklahoma Seed House (Barteldes & Co.).	Oklahoma City, Okla.....	Mail sample.....	18.75	18.75
Do.....	do.....	Seed bought in bulk..	13.53	13.53
L. L. Olds Seed Co.....	Clinton, Wis.....	Mail sample.....	98.55	98.55
Geo. H. Price.....	511 Broadway, Albany, N. Y.....	do.....	43.27	43.27
Do.....	do.....	Seed bought in bulk..	40.45	40.45
Ratekin's Seed House..	Shenandoah, Iowa.....	Mail sample.....	12.26	<i>d</i> 33.70
Do.....	do.....	Seed bought in bulk..	15.29	<i>e</i> 32.53
Robert C. Reeves Co...	187 Water street, New York, N. Y.	Mail sample.....	7.45	<i>f</i> 30.05
Do.....	do.....	Seed bought in bulk..	6.6	<i>g</i> 37.50
Martin C. Ribsam.....	Broad and Front streets, Trenton, N. J.	Mail sample.....	23.68	23.68
Do.....	do.....	Seed bought in bulk..	12.54	<i>h</i> 41.41
Ross Brothers.....	90-92 Front street, Worcester, Mass.	Mail sample.....	32	32
Do.....	do.....	Seed bought in bulk..	31.97	31.97
Wm. G. Scarlett & Co..	729 E. Pratt street, Baltimore, Md.	Mail sample.....	9.45	9.45
Wm. E. Schaeffer.....	Lockport, N. Y.....	do.....	19.08	19.08
Do.....	do.....	Seed bought in bulk..	22.3	22.3
Jos. A. Schindler & Co.	827 Decatur street, New Orleans, La.	Mail sample.....	10.05	<i>i</i> 24.25
Do.....	do.....	do.....	8.2	8.2
Schlegel & Fottler Co..	26 S. Market street, Boston, Mass.	Seed bought in bulk..	6.2	6.2
Do.....	do.....	Mail sample.....	9.39	9.39
Geo. L. Siegel.....	Erie, Pa.....	Seed bought in bulk..	10.85	10.85
Do.....	do.....	Mail sample.....	42.45	42.45
State Nursery Co.....	Helena, Mont.....	Seed bought in bulk..	40.25	40.25
Do.....	do.....	Mail sample.....	32.87	<i>j</i> 45.75
Chas. H. Stone & Co...	9 Chatham Row, Boston, Mass.	Mail sample.....	32.87	

*a* 16.05 per cent chess.

*b* 17.65 per cent molinia.

*c* 16.05 per cent molinia.

*d* 21.41 per cent other fescue grasses.

*e* 17.24 per cent other fescue grasses.

*f* 22.6 per cent other fescue grasses.

*g* 30.9 per cent other fescue grasses.

*h* 6.7 per cent bromus; 22.17 per cent other fescue grasses.

*i* 14.2 per cent other fescue grasses.

*j* 12.88 per cent timothy.

*Results of tests of samples of seed obtained in the open market as orchard grass seed and found to be adulterated—Continued.*

Seed sold as orchard grass by—		Quantity examined.	Seeds used as adulterants.	
Name.	Address.		Meadow fescue and rye-grass.	Total adulterants.
			<i>Per cent.</i>	<i>Per cent.</i>
Chas. H. Stone & Co...	9 Chatham Row, Boston, Mass...	Seed bought in bulk	23.3	23.3
Storrs & Harrison Co...	Painesville, Ohio .....	Mail sample .....	9.04	9.04
Do .....	do .....	Seed bought in bulk	12.35	12.35
Vogeler Seed & Produce Co.	Salt Lake City, Utah.....	Mail sample .....	18.8	18.8
Do .....	do .....	Seed bought in bulk	51.95	51.95
Whitney-Eckstein Seed Co.	Chamber of Commerce Building, Buffalo, N. Y.	Mail sample .....	39.38	39.38
Do .....	do .....	Seed bought in bulk	37.85	37.85
Whitney-Noyes Seed Co.	Church street and Terrace, Buffalo, N. Y.	Mail sample .....	23.13	23.13
Do .....	do .....	Seed bought in bulk	24.2	24.2
N. L. Willet Drug Co.	Augusta, Ga .....	Mail sample .....	29	29
Do .....	do .....	Seed bought in bulk	28.6	28.6

In order that seedsmen, as well as farmers, may avoid the purchase of adulterated seeds, this Department will examine and report promptly as to the presence of adulterants in any samples of seed submitted for that purpose.

JAMES WILSON,

*Secretary of Agriculture.*

WASHINGTON, D. C., *February 7, 1906.*

